REMARKS

Claims 1-11 are currently active.

The Examiner has rejected Claims 1-4, 7, 8 and 11 as being unpatentable over Takezaki in view of Allio and further in view of Lemelson. Applicants respectfully traverse this rejection.

Referring to Takezaki, there is disclosed a three-dimensional image display device and recording device. The Examiner states in the paragraph 4, page 3 of the Office Action, that Takezaki teaches an eye tracker, the CCD 13 of figure 2. It is respectfully submitted that figure 2 teaches a recording device, not the display device. See column 6, lines 34-36. The numeral 13 refers to the recording unit, and has nothing at all to do with an eye tracker even if it was not the recording device that was being discussed. Accordingly, this limitation of Claim 1 of applicants is missing from the applied art of record.

Takezaki teaches the display device comprises a screen shutter unit 1, shutter control unit 2, display unit 3, and a display control unit 4. The screen shutter unit 1 comprises a plurality of shutters each of which is a long narrow shutter strip 1a to transmit or intercept rays in this position in parallel with the vertical direction of the screen. The shutter

control unit 2 drives the screen shutter unit 1, controlling as long and narrow ray passing slits 1b only a plurality of shutters selected at predetermined intervals from the shutters. The entire position of the slits comprising a plurality of slits is moved horizontally at specified time intervals. The display unit 3 displays sections of an image in each section separately corresponding to a slit 1b on an image display screen 3a positioned at a specific distance from the arrangement of shutters. The display control unit 4 synchronizes with the movement of the slits controlled by the shutter control unit 2. An image obtained by projecting a three-dimensional image M of a display object on the image display screen 38 through the above described slits is displayed as an image corresponding to the slits at positions on the image display screen 3a with the positions corresponding to respective slits moving synchronously as described above. The image obtained by projecting a three-dimensional image M of a display object on the image display screen 3a through the slits can be obtained whatever is the positional correlation among the three-dimensional image M, the slits 1b, and the image display screen 3a. See column 5, lines 5-55.

Takezaki teaches that figure 5 shows a correlation among the position of the slits, the position of image M corresponding to each slit, and the rays reaching the viewers right and left eyes SR and SL in the three-dimensional image display device. An image M corresponding to each slit is obtained by projecting a three-dimensional image M to be displayed on the image display screen 3a through each slit. The image M is displayed at the

points on the image display screen 3a where the lines connecting the three-dimensional image M to slits pass through. The broken lines shown in figures 5 and 6 connecting the left and right eyes SR and SL to both ends of the three-dimensional image indicate that, among the rays emitted from the three-dimensional object image M, only the rays passing through the area encompassed by the broken lines reach the left and right eyes SL and SR. Therefore, the rays from respective images M reach the eyes SL and SR as indicated by solid lines through the slits in the area encompassed by the broken lines. The rays indicated by the solid lines pass through the three-dimensional image M, the image display screen 3a, and the slits 1b, crossing them at the encircled points in figure 5. Thus, the point around the arrow tip of the three-dimensional image M corresponds to the same point of the image M on the image display screen 3a. Likewise, the point around the arrow head of the three-dimensional image M corresponds to the same point of the image M on the image display screen 3a. The rays from these points pass through slits $1b_1$ and $1b_2$ to reach the viewers left eye SL. The rays from the middle part of the three-dimensional image M pass through slit $1b_2$, one of the above described slits, to reach the viewers right eye SR. That is, the rays simultaneously reaching the left and right eyes SL and SR trace 3 paths (actually, three luminous fluxes each having the width of the screen in length). See column 9, lines 20-64.

As is apparent from the above description, besides the display of Takezaki failing to have any teaching or suggestion of an eye tracker, there is no teaching or suggestion

of "a display screen upon which stripes of the image appear in at least three distinct phases". There is no teaching or suggestion of the limitation of "a light blocking shutter disposed in front of the display screen forming a stripe pattern which lets through only 1/3 of each stripe of the image on the display screen during each of the at least three distinct phases". There is no teaching or suggestion of "a computer connected to the display screen and the light blocking shutter which changes the phases so when each phase the stripe pattern is shifted laterally". There is no teaching or suggestion of "a computer . . . which renders 2 3D scenes corresponding to the eyes of the observer", let alone the limitation of "for arbitrary observer position and orientation". There is no teaching or suggestion of a "computer . . . which produces a proper left/right orientation pattern for each of the three phrases and which interleaves the left/right orientation into three successive time phases as red, green and blue, respectively. There is no teaching or suggestion of "a computer that continually changes the width in positions of stripes as the observer moves". In fact, it is respectfully submitted that just about all the limitations of Claim 1 are not taught or suggested in the primary reference Takezaki.

Referring to Allio, there is disclosed an autostereoscopic video device and system. Allio teaches that when a video screen is observed through a magnifying glass, it can be seen that the display color image is made up of a periodic succession of red, green and blue color points, which point shine more or less brightly, and the result in color sensation is due to

the three elementary components being subject to a mixing affect in the eye of the observer. See column 2, lines 44-50. In the technique taught by Allio, it is necessary to place a converging lens array in front of the screen and parallel thereto. See column 2, lines 52-54. Allio teaches that a lens array 10 has a pitch equal to that of an elementary phosphor color point multiplied by the number of viewpoints. The number of viewpoints is equal to 4. There are thus 4 horizontally juxtaposed pixels P1 to P4, pixel P1 corresponding to the first view point, pixel P2 to the second viewpoint, pixel P3 to the third viewpoint, and pixel P4 to the fourth view point. Each of the pixels on the screen 20 has three components, respectively red, green and blue. The lens array 10 has microlenses L1, L2, L3 and a pitch equal to the width occupied horizontally by 4 juxtaposed color point, i.e. about four-thirds of a pixel. Thus, depending on his position, the eye of an observer observing the screen 20 through the lens array 10 will see either a juxtaposition of the red component of pixel P1, the green component of pixel P2 and the blue component of pixel P3, or a juxtaposition of the green component, the blue component and the red component or a juxtaposition of the blue component, the red component and the green compound or finally juxtaposition of the red component, the green component and the blue component. In other words, each eye of the observer is likely to mix visually the red, green and blue components of different pixels in the image. See column 3, lines 20-50.

It must be stressed that there is no teaching or suggestion whatsoever of a display screen upon which stripes of the image appear. There is no concern in Allio of such a limitation, but rather what is happening with respect to each of the colors in each of the pixels. There is also no teaching or suggestion of the limitation of a light blocking shutter or a computer as found in Claim 1, or additionally an eye tracker.

Furthermore, the teachings of Allio cannot be combined with the teachings of Takezaki because Takezaki is specifically teaching a shutter based system where Allio is specifically teaching a non-light blocking shutter based system that teaches not to use spectacles. For this reason alone, these references cannot be combined and are incompatible. Moreover, these references have nothing to do with each other, let alone the claimed invention. In addition, there is no motivation in the references themselves, as there must be, to combine the teachings the Examiner is relying upon to arrive at applicants' claimed invention. In fact, one skilled in the art would have no clue on how to take the disparate teachings of each of these references and combine them into an operational system, let alone one that arrives at applicants' claimed invention.

Referring to Lemelson, there is disclosed a three-dimensional display system. Lemelson teaches the graphics controller 8 is programmed to create new viewing locations by oscillating the image pairs horizontally to the left or right of the original position by a small

amount to cause the image to be focused at a new point. The graphics controller 8 produces image pair 32 and 34 that are situated at location 48 under lenticle 19, which is predetermined to be in focus to the first observer in location 40 of the observer A. When the stereoscopic strips of the image pair 32 and 34 are shifted to location 46, they will now be in focus to a second observer B who is observing the screen 12 from location 42. Dark vertical stripes 49 are interposed between successive pairs of right and left video strips. These dark strips 49 are arranged to be in focus at alternate viewing angles.. The dark strips 49 in a stereoscopic image pair 32 and 34 are interchanged during the oscillation of the video image signal. A horizontal shift of the image behind the lenticular screen 12 imposes a proportional shift in the horizontal viewing location. The image pairs 32 and 34 is oscillated between the two locations at a rate above the critical flicker fusion frequency so that the image appears to be continuous to each of the viewers or observers 40 or 42. Isolating the image strip pair 32 and 34 to other positions at the back of a lenticules 19 provides for multiple viewable locations.

As is evident from the above description, the context of the teachings of Lemelson are very specific to a process for shifting image pairs at a rate above the critical flicker fusion frequency. As patent law requires, this context cannot be ignored and the teaching that the Examiner relies on from Lemelson to combine with Takezaki and Allio to arrive at applicants' claimed invention must be taken in this context. The specific teaching the Examiner relies on in Lemelson "that continually changes the width and positions of the stripes

as the observer moves for arbitrary position" is only applicable in regard to this technique of using image pairs which are oscillated between the two locations at a rate above the critical flicker fusion frequency on a lenticular screen 12. It is respectfully submitted it would be not obvious at all how one skilled in the art would take the display system taught by Lemelson and somehow or other modify or amend the display system of Takezaki and Allio, which are completely unique, without undue experimentation, development and guesswork, to make an operational system that would arrive at Claim 1 of applicants. As explained above, Allio is concerned with the display of a color image that is made up of a periodic succession of red, green and blue color points that have no basis for using image pairs that are oscillated between two locations, or Takezaki which obtains an image by projecting a three-dimensional image M of a display object on the image display screen 3a through slits.

It is further respectfully submitted that this is a classic example of the use of hindsight by the Examiner to arrive at applicants' claimed invention. This is not patent law. The Examiner is using the limitations of Claim 1 as a road map to find the various limitations in the distinct and separate references, and having supposedly found each of the limitations of Claim 1 in the different references, the Examiner concludes that applicants' claimed invention is arrived at. However, applicants submit that for each of their elements by themselves, they do not purport to have discovered them. Applicants cannot contend they discovered an eye tracker, or a computer, or a display screen or a light blocking shutter. What applicants do

contend they discovered is how they use these different elements, as claimed with the stated limitations, to arrive at a unique and novel apparatus for displaying an image, as found in Claim 1.

Accordingly, Claim 1 is patentable over the applied art of record. Claims 2-4 are dependent to Claim 1 and are patentable for the reasons Claim 1 is patentable.

Claim 7 is patentable for the reasons Claim 1 is patentable. Claims 8 and 11 are dependent to parent Claim 7 and are patentable for the reasons Claim 7 is patentable.

The Examiner has rejected Claims 5, 6, 9 and 10 as being unpatentable over Takezaki in view of Allio and Lemelson and further in view of Johnson. Applicants respectfully traverse this rejection. Claims 5 and 6 are dependent to parent Claim 1, and Claims 9 and 10 are dependent to parent Claim 7. Johnson in pertinent part does not add anything to the teachings of Takezaki, Allio or Lemelson to arrive at Claims 1 or 7. Accordingly, Claims 5 and 6, which depend from Claim 1, and Claims 9 and 10 which depend from Claim 7, are patentable over the applied art of record.

The Examiner has rejected Claims 5, 6, 9 and 10 as being unpatentable over Takezaki in view of Allio, Lemelson and Johnson. Applicants respectfully traverse this

rejection. The Examiner cites Johnson simply for the teaching of a ferroelectric liquid crystal display and a Pi cell. Allio does not teach or suggest anything at all involved with stripes let alone the other limitations of Claims 1 and 7. There is no reason why one skilled in the art would look to combine Johnson, or for that matter, Allio and Lemelson and Takezaki, without the use of hindsight from applicants' own claims. However, the use of hindsight is contrary to patent law. There must be some teaching in the references themselves to combine the references to arrive at applicants' claimed invention, and there is none. Accordingly, Claims 5, 6, 9 and 11 are dependent to parent Claims 1 or 7, and are patentable for the reasons Claims 1 or 7 are patentable.

In view of the foregoing amendments and remarks, it is respectfully requested that the outstanding rejections and objections to this application be reconsidered and withdrawn, and Claims 1-11, now in this application be allowed.

Respectfully submitted,

KENNETH PERLIN, ET AL.

By _____

Ansel M. Schwartz, Esquire
Reg. No. 30,587
One Sterling Plaza
201 N. Craig Street
Suite 304
Pittsburgh, PA 15213
(412) 621-9222

Attorney for Applicants

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Ansel M. Schwartz
Registration No. 30,587